

REMARKS/ARGUMENTS

Claims 1-3, 6-11, and 13-17 are pending. Claims 1 and 11 have been amended. Claims 4, 5, and 12 have been canceled. No new matter has been added.

Claim 1 has been amended to include the features of claims 4 and 5 in their entirety. Claim 11 has been amended to include the features of claim 12 in its entirety. Accordingly, Applicant believes these amendment do not raise any new issue since these subject matters were present before the Examiner previously.

Claims 1-17 were rejected under 35 U.S.C. § 102(b) as being anticipated by Zommer. Applicant traverses the rejection. Claim 1 relates to using two different dopant types to create the vertical diffusion region. For example, boron is used to create the upper portion of the vertical diffusion region, and aluminum is used to create the lower portion of the vertical diffusion region. Since aluminum has a greater mobility than boron, the lower portion has a greater depth than the upper portion. See page 11, third paragraph. Boron is used to form the upper portion of the vertical diffusion region to reduce the risk of contamination on the front side of the power device whereon many structures are formed.

Contrary to the Examiner's assertion, Zommer does not specifically address the above concern and does not disclose the use of boron (impurities of first type) to form the upper portion of the vertical diffusion and aluminum (impurities of second type) to form the lower portion of the vertical diffusion. That is, Zommer discloses the use of boron to form guard regions 115 and the like but does not disclose using boron on a region 701 (Fig. 10) that is used to form the upper portion of the vertical diffusion region. Note Zommer states, "...P type regions 701, 703 diffuse faster than the P type impurities of, for example, the well region, the guard ring region, and the drain region." Col. 6:48-50.

Accordingly, Zommer does not disclose, " the vertical diffusion region including: an upper portion having a first depth, and a lower portion having a second depth that is substantially greater than the first depth, wherein the upper portion primarily comprises of an impurity of first type and the lower portion comprises of an impurity of second type different from the impurity of first type, wherein the impurity of first type has a first diffusion rate and the

impurity of second type has a second diffusion rate, the second diffusion rate being greater than the first diffusion rate." Claim 1 is allowable at least for this reason.

Claim 11 recites, "a scribe diffusion region of second conductivity type provided around the active region, the scribe diffusion region extending continuously from the front side of the substrate to the backside of the substrate, the scribe diffusion region comprising an impurity of first type and an impurity of second type different from the impurity of first type, the scribe diffusion region including a first portion adjacent to the front side of the substrate and a second portion adjacent to the backside of the substrate, the first portion primarily comprising the impurity of first type and the second portion primarily comprising the impurity of second type." Zommer does not disclose these features. Claim 11 is allowable at least for this reason. Other claims depend from claim 1 or 11 and are allowable at least for this reason.

Applicant respectfully request a telephone call from the Examiner prior to the issuance of the next Office Action.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



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